The invention claimed is:

1. A compound comprising:

a dendritic polymer core, and:

segments containing alternating conjugated double and triple bonds, said segments bonded to the surface of the dendritic polymer core.

2. The compound of claim 1, wherein the dendritic polymer is a dendrimer.

3. The compound of claim 1, wherein the dendritic polymer is a tecto-dendrimer.

4. The compound of claim 1, wherein the dendritic polymer is a dendron.

5. The compound of claim 1, wherein the dendritic polymer is a hyperbranched polymer.

6. The compound of claim 1, wherein the dendritic polymer is a hypercomb-branched polymer.

7. The compound of claim 1, wherein the dendritic polymer is a hyperbranched polymer having a average degree of branching of from about 0.25 to about 0.45.

8. The compound of claim 1, wherein the alternating conjugated double and triple bonds are formed by intramolecular linking of diacetylene moieties.

9. A compound comprising:

a reaction product of a dendritic polymer and a diacetylene reagent, wherein the diacetylene functional groups are intramolecularly polymerized to form segments having alternating conjugated double and triple bonds.

10. The compound of claim 9, wherein the dendritic polymer is a dendrimer.

11. The compound of claim 9, wherein the dendritic polymer is a tecto-dendrimer.

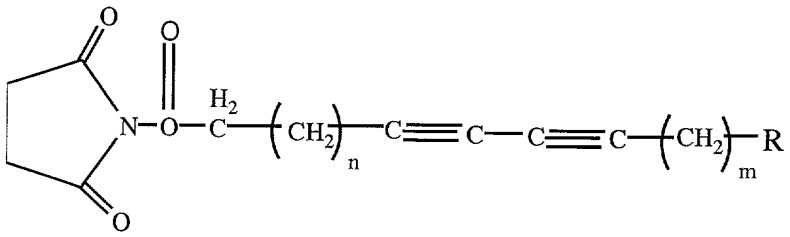
12. The compound of claim 9, wherein the dendritic polymer is a dendron.

13. The compound of claim 9, wherein the dendritic polymer is a hyperbranched polymer.

14. The compound of claim 9, wherein the dendritic polymer is a hypercomb-branched polymer.

15. The compound of claim 9, wherein the dendritic polymer is a hyperbranched polymer having a average degree of branching of from about 0.25 to about 0.45.

16. The compound of claim 9, wherein the diacetylene reagent has the following general formula:



wherein n and m are integers.

17. The compound of claim 16, wherein m is greater than or equal to 8.

18. The compound of claim 16, wherein n is less than or equal to 5.

19. A molecular chemical and/or biological sensor comprising:

a reaction product of a dendritic polymer and a diacetylene reagent, wherein the diacetylene functional groups are intramolecularly polymerized to form segments having alternating conjugated double and triple bonds; and

one or more sensory groups having binding sites for binding with an analyte is bonded to diacetylene-containing moieties of the reaction product.

20. The molecular sensor of claim 19, wherein the dendritic polymer is a dendrimer.

21. The molecular sensor of claim 19, wherein the dendritic polymer is a tecto-dendrimer.

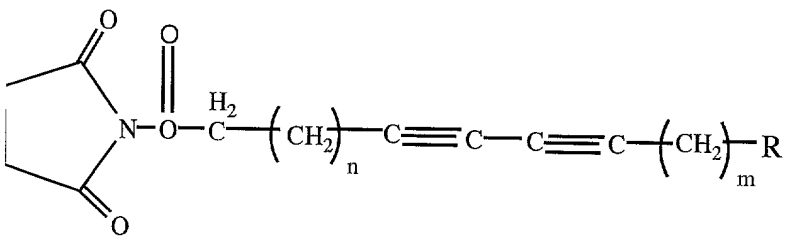
22. The molecular sensor of claim 19, wherein the dendritic polymer is a dendron.

23. The molecular sensor of claim 19, wherein the dendritic polymer is a hyperbranched polymer.

24. The molecular sensor of claim 19, wherein the dendritic polymer is a hypercomb-branched polymer.

25. The molecular sensor of claim 19, wherein the dendritic polymer is a hyperbranched polymer having a average degree of branching of from about 0.25 to about 0.45.

26. The molecular sensor of claim 19, wherein the diacetylene monomer has the following general formula:



wherein n and m are integers. .

27. The molecular sensor of claim 19, wherein m is greater than or equal to 8.

28. The molecular sensor of claim 19, wherein n is less than or equal to 5.

29. The molecular sensor of claim 19, wherein the sensory group is selected from the group consisting of peptides, carbohydrates, nucleic acids, biotin, drugs, chromophores, antigens, chelating compounds, molecular recognition complexes, ionic groups, polymerizable groups, linker groups, electron donors, electron acceptors, hydrophobic groups, hydrophilic groups, receptor binding groups, antibodies, and combinations thereof.

30. A method of detecting and/or quantifying the amount of an analyte in a sample, comprising:

contacting a sample that is to be analyzed for a particular analyte with a molecular chemical and/or biological sensor which is a reaction product of a dendritic polymer and a diacetylene reagent, wherein the diacetylene functional groups are intramolecularly polymerized to form segments having alternating conjugated double and triple bonds, and

one or more sensory groups having binding sites for binding with an analyte, each sensory group bonded to a diacetylene-containing moieties of the reaction product.

31. The method of claim 30, wherein the dendritic polymer is a dendrimer.

32. The method of claim 30, wherein the dendritic polymer is a tecto-dendrimer.

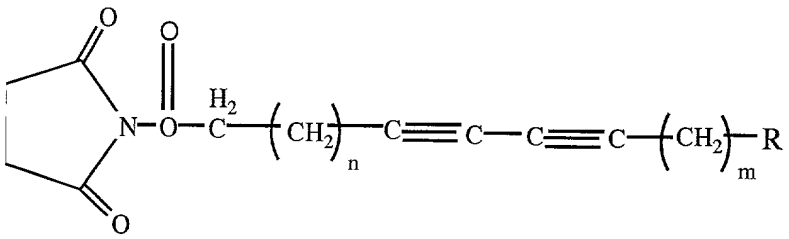
33. The method of claim 30, wherein the dendritic polymer is a dendron.

34. The method of claim 30, wherein the dendritic polymer is a hyperbranched polymer.

35. The method of claim 30, wherein the dendritic polymer is a hypercomb-branched polymer.

36. The method of claim 30, wherein the dendritic polymer is a hyperbranched polymer having a average degree of branching of from about 0.25 to about 0.45.

37. The method of claim 30, wherein the diacetylene reagent has the following general formula:



wherein n and m are integers.

38. The method of claim 30, wherein m is greater than or equal to 8.

39. The method of claim 30, wherein n is less than or equal to 5.

40. The method of claim 30, wherein the sensory group is selected from the group consisting of peptides, carbohydrates, nucleic acids, biotin, drugs, chromophores, antigens, chelating compounds, molecular recognition complexes, ionic groups, polymerizable groups, linker groups, electron donors, electron acceptors, hydrophobic groups, hydrophilic groups, receptor binding groups, antibodies, and combinations thereof.

41. The method of claim 30, wherein the sample is a biological tissue sample.

42. The method of claim 30, wherein the sample is a liquid sample.

43. The method of claim 30, wherein the molecular sensor is soluble in water.

44. The method of claim 30, wherein the molecular sensor is soluble in a hydrophobic organic solvent.

45. The method of claim 30, wherein the molecular sensor is immobilized on a particulate solid substrate.

46. The method of claim 30, wherein the dendritic polymer is a cross-linked network of dendritic polymer molecules, whereby the sensory groups are inherently immobilized on a solid support.